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Information Sheet – NFPA 72 (Fire Alarm Systems) – 2010 Edition

This document is intended to provide information on the changes that are included in the 2010 edition of NFPA 72 (National Fire Alarm and Signaling Code).

Adoption of 2010 Edition of NFPA 72:

The 2010 edition of NFPA 72 was formally adopted as of June 11, 2012 in Minnesota. It replaced the 2002 edition that was in effect for the past several years. The first significant change that users will notice is in the title of the document; NFPA 72 is now referred to as the *"National Fire Alarm and Signaling Code"*.

Retroactivity of NFPA 72:

Like most installation standards, NFPA 72 is not intended to be enforced retroactively on existing buildings (see NFPA 72 section 1.4.1). The State Fire Marshal Division routinely receives questions on how to address new fire alarm systems in existing buildings. The MSFC and NFPA 72 do not specifically address this issue. It is ultimately up to the authority having jurisdiction to determine when a fire alarm system must be brought into compliance with the 2010 edition (preferably by written policy).

Requiring that a fire alarm system in an existing building meet the requirements that NFPA 72 intends for new systems can be difficult, particularly when dealing with notification appliances and minimum sound levels. The need for occupant evacuation, the evacuation capabilities of the occupants, and the cost of the upgrades should be considered when applying the requirements of NFPA 72 to a fire alarm system in an existing building.

Emergency Communications Systems:

Users will now find a new chapter (Chapter 24 – Emergency Communication Systems) regulating the installation and use of voice evacuation and mass notification systems. It is important for code officials to note that the Minnesota State Fire Code and Minnesota State Building Code (in section 907 of the respective documents) determine when a voice evacuation system is required in a building. NFPA 72 tells you how the system should be installed when required by the fire and building codes.

Voice Evacuation Systems Used for Other Functions:

When a voice evacuation system is installed in a building, the system can be used for other non-emergency functions. NFPA 72 (10) allows the fire alarm system to be utilized for other ancillary functions such as general paging, background music or other non-emergency functions as long as the fire alarm signal takes precedence over all other signals.

Building Evacuation Strategies:

Many people have a "one-size fits-all" approach to fire alarm systems and treat them like the fire alarm system we experienced in schools (the alarm sounds loudly and everyone leaves

the building in an orderly fashion). However, this practice may not be desirable in all buildings and is not necessarily required.

In addition to the public mode / private mode provisions of NFPA 72, another frequently overlooked provision in NFPA 72 is Section 23.8.6.3. This section allows fire alarm signals to be sounded by zone and that the notification should match the evacuation strategy of the facility (see the language below):

23.8.6.3.1 Notification zones shall be consistent with the emergency response or evacuation plan for the protected premises.

23.8.6.3.2 The boundaries of notification zones shall be coincident with building outer walls, building fire or smoke compartment boundaries, floor separations, or other fire safety subdivisions.

Low Frequency Sounding Devices:

NFPA 72, Section 18.4.5.3 contains new language requiring low frequency sounding devices in rooms used for sleeping that took effect on January 1, 2014. The alarm signal in the sleeping area must produce a square wave signal that meets a frequency of 520 Hz \pm 10 percent (NFPA 72 section 18.4.5.3). This language will apply to new hotel/motels, apartments and assisted living facilities. It is not intended to apply to hospitals, nursing homes or child care centers where staff is available to assist with evacuation.

Studies have shown that occupants with mild to severe hearing loss are not able to hear and wake up to the standard 3,000 Hz notification appliance. However, research studies have shown when occupants were tested at the 520 Hz level, the occupants awoke 100% of the time.

Residential Low Frequency Sounding Devices:

NFPA 72, Chapter 29 (Single and Multiple Station Alarms and Household Fire Alarm Systems) contains new language for low frequency smoke alarms in dwelling units where the occupants have mild to severe hearing loss (section 29.3.8.1). This language will be difficult to apply in single family homes. But it is important to keep this section in mind when applying the code requirements for an assisted living facility where the occupants may have mild to severe hearing loss.

Occupants with profound hearing loss (greater than 90 Hz) must be provided with tactile notification appliances (section 29.3.8.2). It is important to differentiate between the Chapter 18 fire alarm system notification requirements and the dwelling unit smoke alarm provisions of chapter 29. Chapter 18 applies to all fire alarm system installations where occupants sleep. Chapter 29 applies to only those occupants with mild to severe hearing loss.

This document was developed by John Swanson, Deputy State Fire Marshal. John is a member of the NFPA 72 Technical Committee.

Questions about NFPA 72 can be directed to the Minnesota State Fire Marshal Division's Fire Code Section at 651-201-7200 or via e-mail: firecode@state.mn.us